FIGURE 1

Nucleotide Sequence of Human NNT-1 cDNA

```
  1  ATTAAAGCTT CGCCGGAGCC GCGGCTCGCC CTCCCACTCC GCCAGCCTCC
 51  GGGAGAGGAG CCGCACCCGG CCGGCCCAGC CCCAGCCCCA TGGACCTCCG
101  AGCAGGGGAC TCGTGGGGGA TGTTAGCGTG CCTGTGCACG GTGCTCTGGC
151  ACCTCCCTGC AGTGCCAGCT CTCAATCGCA CAGGGGACCC AGGGCCTGGC
201  CCCTCCATCC AGAAAACCTA TGACCTCACC CGCTACCTGG AGCACCAACT
251  CCGCAGCTTG GCTGGGACCT ATCTGAACTA CCTGGGCCCC CCTTTCAACG
301  AGCCAGACTT CAACCCTCCC CGCCTGGGGG CAGAGACTCT GCCCAGGGCC
351  ACTGTTGACT TGGAGGTGTG GCGAAGCCTC AATGACAAAC TGCGGCTGAC
401  CCAGAACTAC GAGGCCTACA GCCACCTTCT GTGTTACTTG CGTGGCCTCA
451  ACCGTCAGGC TGCCACTGCT GAGCTGCGCC GCAGCCTGGC CCACTTCTGC
501  ACCAGCCTCC AGGGCCTGCT GGGCAGCATT GCGGGCGTCA TGGCAGCTCT
551  GGGCTACCCA CTGCCCCAGC CGCTGCCTGG GACTGAACCC ACTTGGACTC
601  CTGGCCCTGC CCACAGTGAC TTCCTCCAGA AGATGGACGA CTTCTGGCTG
651  CTGAAGGAGC TGCAGACCTG GCTGTGGCGC TCGGCCAAGG ACTTCAACCG
701  GCTCAAGAAG AAGATGCAGC CTCCAGCAGC TGCAGTCACC CTGCACCTGG
751  GGGCTCATGG CTTCTGACTT CTGACCTTCT CCTCTTCGCT CCCCCCC
```

FIGURE 2

Genomic sequences of the human NNT-1

```
   1  aacctgcgag tgggcctggc ggatgggatt attaaagctt cgccggagcc
  51  gcggctcgcc ctcccactcc gccagcctcc gggagaggag ccgcacccgg
 101  ccggcccagc cccagccccA TGGACCTCCG AGCAGgt--- ----------

      -----( >1 kb )----------------------------  tgaaaaccca

 151  aactagccct gctcttcata acatgacaag cagcgcccca tctgatacct
 201  aaaccgacca agtcacagcc ctccaactca ccctctgcct gcccagacct
 251  caccacatcc ttgstggact caaacctcaa ccgcactaaa tcaaccaaat
 301  cccaagtcta aactaatctg aaacttttaa agtaacccag tccttaaacc
 351  taacctagcc caatgccaat tatatctacc ctagccaaac cctaactgcc
 401  tttgccagtc caaagtgtcc actgaatcct caccttggtc ctcactgaaa
 451  atcccagaaa agcatatttc cccactgccc acatccctcc ttacagcacc
 501  caaccctggc ctctggactc ctggtatcct gggatgtcca aactctgcag
 551  tgccatcagc caacaagccc gactcgtcaa atgcacctct ctcccttcct
 601  gtccccaccc ttgcaggctg atggaaaggc ctcattgaag tccaacttt
 651  ccccacctaa caccaagaac ggggtgaacc tccacactgc caccgttccc
 701  tgagagtgag cactaaatct ccttcaatct aaccccaccc tacacttccc
 751  acactcagga atcacatcct agaatatacc caaaactaag ccccataagg
 801  cagcccgacc ctagtggtct aaccctatac cttgcttcct atgggtgagt
 851  ctgttcttgg cggccgcctc tctcctgctt cctcccttag agctgactgt
 901  gctcagcctg ccagctctga catgtgctgt ctcccaccct ctgactcccc
 951  tcaagctgca gtgggactgg aagactggca ggaagctagg gtacaactgg
1001  aacacaggca ggtcgacctg cagtccctag gcctggcccc gtccctccat
1051  gtacacacat atacatgttg gcacacacac agtggcacac atgccaaaga
1101  ctctctcagc tgacacacag atccattctc aagtatctac tgatagacac
1151  tcatgcgtgc caagtcctca tcctcaaaca tacacatgcc tctctttctc
1201  tcccgtcttg ccaggagtgt ttcccctcct ccatccccte tgcctcccat
1251  ctggtgtccc accctcaccc cccacccagc ccaaggtggg gacagacacc
1301  tgaggggctg ccagctgctt ccccgtgtgg gcccgggccg cgctcatgct
1351  tctcgtccat cctgcccaca gGGGACTCGT GGGGGATGTT AGCGTGCCTG
1401  TGCACGGTGC TCTGGCACCT CCCTGCAGTG CCAGCTCTCA ATCGCACAGG
1451  GGACCCAGGG CCTGGCCCCT CCATCCAGAA AACCTATGAC CTCACCCGCT
```

Figure 2 (continued)

```
1501  ACCTGGAGCA CCAACTCCGC AGCTTGGCTG GGACCTATgt gagtatccag
1551  cgtaggaatc tgggagttgg ggaggagtga ggagttgggg aaagacagtc
1601  ctaaccgtgg agggttctgg taaatgatgg ggtgaggagg ggctctttgg
1651  ctcccaccag tccccctgtc tggtctatct cctgcccttc cctcttaggt
1701  ggcccccccca cttccccatc cctggcccca ggactaggca tgtgggcagg
1751  cctcgcaccc gccttggccc attgccccac tggctgccag cccagccgcc
1801  cgcctccccc tgggggccgg ggaagtctcc tctgtttaca ccgtgttgtg
1851  gtgtctcttg cgcgggcggg gttgggtggg gacagagggg ccccacctcc
1901  catgcctgcg ttccagctcg cctctgcccc cagacctggg gccctgctgc
1951  tctggaccca ggggcctccc ttccgtctgc ctctcccatc ctagctgggc
2001  ctcctagggg ggtcatgggg gaaggggact gtagggaacc caggcagtag
2051  tggcaggggg tttagggtgt ggatggaggt tatgctgtaa ggatttgggg
2101  gtggtccaga ggtgttcaga gagcccagga gagaaggaag gagggttgga
2151  ggagccgagg caccatgggg aaccggcccc ctcttcccgt gttcctcttc
2201  cacatcccag accctactct ggagccaggg aaagaaaagg gaagaaggtg
2251  gcgggggagc tggctccagc cccaggatac accgaggaaa ttagtttgtc
2301  tctgtgcttg tcagcgtgtg aacctccccc tgggcccttg cctatcccag
2351  gcctctcccc ttgcttctcc cttctttccc agttatacat ctccctcatc
2401  cctttccctg ggccccagcc gctcccccga gggttggaaa gggctctgcc
2451  ctcttcccta taccatgctg tcttccatag ccttcctcct gtcctactca
2501  tgagactgcc tccatttctt ccttctgcaa ccctgctcct atcagctgaa
2551  cccttctttc ggagtgttag tgagtacccg tctctcccca gcccctcagc
2601  tggtgggcct gggtgtgtca gcggcaaatg gggctctggt tccaatgggc
2651  cactctcatc tctctcttgt tccttgtgca gaaaaccttt gcttcactcc
2701  actgccctct ctagttcccg acccttttc tctcctggct ttccctgcca
2751  aatttctcca aggagtggtc tacaccctct gcctccactt cctctccacc
2801  cactcacttc ttaacccct gcaatctggc ttccaggccc cagcaatggt
2851  tctctccaag gtcgtcaggc acctccttgc caagcccgac agtgttttga
2901  aggctcattc tccttgctgt ctgttttgca gccacactgc tgagcgctgc
2951  tgccttctcg aactcctctt ccttggtctc tgcactctcc tgggccacct
3001  tctacctctc cagctcctcc aggctcctct tcctctctgt cctgcccca
3051  cagcgggcac tctcccaagg tttgcccacc cagccaatca gcacgtcctt
3101  cctgagcgtc ttgtgcgtct cctcctcctc ctttttctac gcctctccat
3151  tggagagctc accaccgcca ctgcttcaac tgtcacctgc atacaaatga
```

Figure 2 (continued)

3201 tatccttatt ggaaaaactc agggaggcca tgaacaaaga agcctagcat

3251 ggagacaggg ccagtgtcag gggacacaaa aaatagaaac tttgggagca

3301 ggtatctcct tggtggtgag ccagcggctc tgccctcctc cttccccatc

3351 accctctcct tttcacagCT GAACTACCTG GGCCCCCCTT TCAACGAGCC

3401 AGACTTCAAC CCTCCCCGCC TGGGGGCAGA GACTCTGCCC AGGGCCACTG

3451 TTGACTTGGA GGTGTGGCGA AGCCTCAATG ACAAACTGCG GCTGACCCAG

3501 AACTACGAGG CCTACAGCCA CCTTCTGTGT TACTTGCGTG GCCTCAACCG

3551 TCAGGCTGCC ACTGCTGAGC TGCGCCGCAG CCTGGCCCAC TTCTGCACCA

3601 GCCTCCAGGG CCTGCTGGGC AGCATTGCGG GCGTCATGGC AGCTCTGGGC

3651 TACCCACTGC CCCAGCCGCT GCCTGGGACT GAACCCACTT GGACTCCTGG

3701 CCCTGCCCAC AGTGACTTCC TCCAGAAGAT GGACGACTTC TGGCTGCTGA

3751 AGGAGCTGCA GACCTGGCTG TGGCGCTCGG CCAAGGACTT CAACCGGCTC

3801 AAGAAGAAGA TGCAGCCTCC AGCAGCTGCA GTCACCCTGC ACCTGGGGGC

3851 TCATGGCTTC tgacttctga ccttctcctc ttcgctcccc cttcaaaccc

3901 tgctcccact ttgtgagagc cagccctgta tgccaacacc tgttgagcca

3951 ggagacagaa gctgtgagcc tctggccctt tcctggaccg gctgggcgtg

4001 tgatgcgatc agccctgtct cctccccacc tcccaaaggt ctaccgagct

4051 ggggaggagg tacagtaggc cctgtcctgt cctgtttcta caggaagtca

4101 tgctcgaggg agtgtgaagt ggttcaggtt ggtgcagagg cgctcatggc

4151 ctcctgcttc ttgcctacca cttggccagt gcccacccag cccctcaggt

4201 ggcacatctg gagggcaggg gttgaggggc caccaccaca catgcctttc

4251 tggggtgaag ccctttggct gccccactct ccttggatgg gtgttgctcc

4301 cttatcccca aatcactcta tacatccaat tcaggaaaca aacatggtgg

4351 caattctaca caaaaagaga tgagattaac agtgcagggt tggggtctgc

4401 attggaggtg ccctataaac cagaagagaa aatactgaaa gcacaggggc

4451 agggacagac cagaccagac ccaggagtct ccaaagcaca gagtggcaaa

4501 caaaacccga gctgagcatc aggaccttgc ctcgaattgt cttccagtat

4551 tacggtgcct cttctctgcc ccctttccca gggtatctgt gggttgccag

4601 gctggggagg gcaaccatag ccacaccaca ggatttcctg aaagtttaca

4651 atgcagtagc attttggggt gtagggtggc agctccccaa ggccctgccc

4701 cccagcccca cccactcatg actctaagtg tgttgtatta atatttattt

4751 atttggagat gttatttatt agatgatatt tattgcagaa tttctattct

4801 tgtattaaca aataaaatgc ttgccccaga acttagtctc tttgcccagc

4851 ctcacccctc ctggtgctca tcagactctt gccacccctg gctcccactc

Figure 2 (continued)

```
4901  cctgcttgcc tctggtggag ctgcacagag ctctgggaag aggccctctt
4951  cctccccgca ctggggcgat gggcgcacct cagacttacc cactgctgct
5001  gccaccacca acccccttgat ccctcagtcc tcccacacag cttctgtcca
5051  ccccaggttt ccctcacccc acctttgcta agtcttcctc a
```

FIGURE 3

Amino acid Sequence of Human NNT-1 cDNA

```
     -27                                  1
      MDLR AGDSWGMLAC LCTVLWHLPA VPALNRTGDP GPGPSIQKTY   17

DLTRYLEHQL RSLAGTYLNY LGPPFNEPDF NPPRLGAETL PRATVDLEVW   67

RSLNDKLRLT QNYEAYSHLL CYLRGLNRQA ATAELRRSLA HFCTSLQGLL  117

GSIAGVMAAL GYPLPQPLPG TEPTWTPGPA HSDFLQKMDD FWLLKELQTW  167

                                198
LWRSAKDFNR LKKKMQPPAA AVTLHLGAHG F*                     198
```

FIGURE 4

Nucleotide Sequence of Murine NNT-1 cDNA

```
  1  TATTATTAAA GCTTCGCCGG AGCCGCGGCT CGCCCTCCCA CTCCGCCAGC
 51  CTCTGGGAGA GGAGCCGCGC CCGGCCGGCC CGGCCCCCAG CCCCATGGAC
101  CTCCGAGCAG GGGACTCGTG GGGGATGTTA GCTTGCCTAT GCACGGTGCT
151  GTGGCACCTC CCTGCAGTGC CAGCTCTTAA TCGCACAGGA GATCCAGGCC
201  CTGGCCCCTC CATCCAGAAA ACCTATGACC TCACCCGCTA CCTGGAGCAT
251  CAACTCCGCA GCTTAGCTGG GACCTACCTG AACTACCTGG GGCCCCCTTT
301  CAACGAGCCT GACTTCAATC CTCCTCGACT GGGGGCAGAA ACTCTGCCCA
351  GGGCCACGGT CAACTTGGAA GTGTGGCGAA GCCTCAATGA CAGGCTGCGG
401  CTGACCCAGA ACTATGAGGC GTACAGTCAC CTCCTGTGTT ACTTGCGTGG
451  CCTCAACCGT CAGGCTGCCA CAGCTGAACT CCGACGTAGC CTGGCCCACT
501  TCTGTACCAG CCTCCAGGGC CTGCTGGGCA GCATTGCAGG TGTCATGGCG
551  ACGCTTGGCT ACCCACTGCC CCAGCCTCTG CCAGGGACTG AGCCAGCCTG
601  GGCCCCTGGC CCTGCCCACA GTGACTTCCT CCAGAAGATG GATGACTTCT
651  GGCTGCTGAA GGAGCTGCAG ACCTGGCTAT GGCGTTCAGC CAAGGACTTC
701  AACCGGCTTA AGAAGAAGAT GCAGCCTCCA GCAGCTTCAG TCACCCTGCA
751  CTTGGAGGCA CATGGTTTCT GACCTCTGAC CCTTAACCCC CACACCTCCA
801  GGCCCAGTCA GCTGTGCTT
```

FIGURE 5

Amino Acid Sequence of Murine NNT-1

```
-27                                1
MDLRAGDSWG MLACLCTVLW HLPAVPALNR TGDPGPGPSI QKTYDLTRYL   23

EHQLRSLAGT YLNYLGPPFN EPDFNPPRLG AETLPRATVN LEVWRSLNDR   73

LRLTQNYEAY SHLLCYLRGL NRQAATAELR RSLAHFCTSL QGLLGSIAGV  123

MATLGYPLPQ PLPGTEPAWA PGPAHSDFLQ KMDDFWLLKE LQTWLWRSAK  173

                          198
DFNRLKKKMQ PPAASVTLHL EAHGF*                             198
```

FIGURE 6

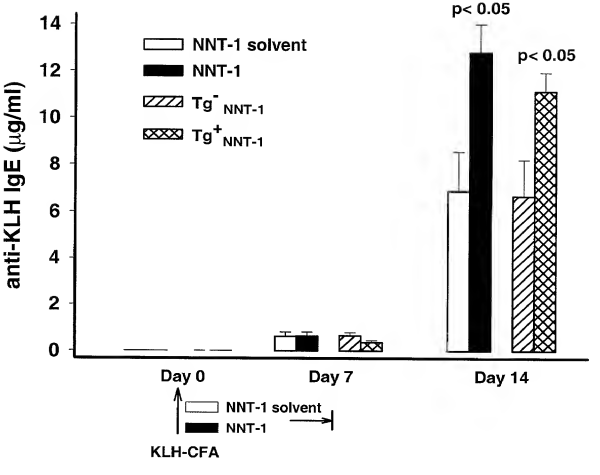
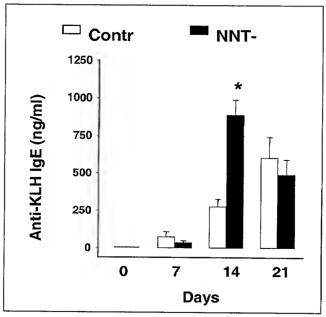


FIGURE 7


Contr
NNT-
Anti-KLH IgE (ng/ml)
1250
1000
750
500
250
0
*
0
7
14
21
Days